THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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Results of the fourth cotton seedling disease survey are summarized by Paul R. Miller and Richard Weindling, page 378.

In the eastern region northward from New Jersey the combination of winter and spring drought, strong winds, and unseasonably warm early spring weather was responsible for much injury to trees and shrubs, discussed by E. P. Felt, page 380, and, with special reference to rhododendrons, by P. P. Pirone, page 385.

G. E. Altstatt and P. A. Young report tomato diseases observed during a survey in northeastern Texas, page 387.

Potato late blight has an early start in Pennsylvania, according to O. D. Burke, who also reports on bacterial ring rot. Late blight and other potato diseases in New York are reported by several persons, page 388.

Brief notes, page 389, include a report by A. A. Dunlap on a leaf spot of safflower in Texas; a summary of cereal diseases observed during a barley disease survey in some of the north central States, and a note on the occurrence of flax anthracnose in California.

CHECK LIST REVISION

Freeman Weiss

MAHONIA (BERBERIDACEAE)

MAHONIA spp. Evergreen trailing or upright shrubs of the Western States, especially M. AQUIFOLIUM (Pursh) Nutt. and M. NERVOSA (Pursh) Nutt., OREGON HOLLYGRAPE, M. PINNATA (Lag.) Fedde, WAVYLEAF HOLLYGRAPE, and M. REPENS (Lindl.) G. Don, CREEPING HOLLYGRAPE. M. AQUIFOLIUM and M. BEALEI (Fort.) Carr. (intr. from China) are also cult. in Zone V.

Coccomyces dentatus (Schm. ex Fr.) Sacc., and var. hexagonus Penz. & Sacc., on leaves. Oreg., Wash.
Cucurbitaria berberidis Pers. ex S. F. Gray, on twigs. Oreg.
Cumminsiella sanguinea (Pk.) Arth., rust (0, I, II, III). Western Great Plains to Pacific Coast.
C. texana (Holw. & Long) Arth., rust (0, I, II, III). On M. trifoliolata, Texas.
C. wootoniana Arth., rust (II, III). On M. fremontii and M. haematocarpa in Ariz. & N. Mex.
Gloeosporium berberidis Cke., on leaves. Wash.
Heterodera marioni (Cornu) Goodey, root knot.
Laestadia berberidis Del., on leaves. Md.
Leptosphaeria coniothyrium (Fckl.) Sacc., on stems. Md.
Mycosphaerella berberidis (Auer.) Lindau, on leaves. Wash.
Phyllosticta berberidis Rabh., leaf spot. Wash.
P. japonica Thuem., Conn. On M. bealei.
P. mahoniaecola Pass., Ala., N. Y., Wash.
P. mahoniana (Sacc.) Allesch., Ala.
Phymatotrichum omnivorum (Shear) Dug., root rot. Texas.
Puccinia graminis Pers. rust (0, I). Calif., Mich.*
P. koeleria Arth., rust (0, I). Colo., Idaho, Mont., Oreg., Wash. II and III on Koeleria cristata.
(P. mirabilissima Pk.): Cumminsiella sanguinea.
P. oxalidis (Lév.) Diet. & Ell., rust (0, I). N. Mex. II and III on Oxalis spp.
(Uropyxis sanguinea Arth.): Cumminsiella sanguinea.

MALACHRA (MALVACEAE)

MALACHRA CAPITATA L., Shrub of tropical America, sometimes grown for ornament in the far South.

Cercospora malachrae Heald & Wolf, leaf spot. Texas, P. R. (C. malachrae Young.)

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* *Natural infection reported on cult. M. diversifolia Sweet in Mich. and native M. pinnata in Calif. Of the spp. here classified in Mahonia, Cotter & Levine (U. S. Dept. Agri. Tech. Bull. 300) report susceptibility to this rust in: M. aquifolium (on fruit and slightly on leaves), M. fremontii, M. nervosa (pycnia), and M. pinnata; M. repens is immune. Cf. BERBERIS.

MALLOTUS (EUPHORBIACEAE)

MALLOTUS JAPONICUS Müll. Small tree of E. Asia, sometimes grown for ornament in far South.

Cercospora malloti Ell. & Ev., leaf spot. Miss.

MALPIGHIA (MALPIGHIACEAE)

MALPIGHIA GLABRA L., BARBADOS-CHERRY. Tropical American shrub bearing edible fruit, sometimes cult. in S. Fla.

Cephaleuros virescens Kze., green scurf. P. R.

MALUS (ROSACEAE, subfamily MALACEAE)

MALUS ANGUSTIFOLIA (Ait.) Michx., SOUTHERN CRAB. Large partly evergreen shrub or small tree of Growth Regions 25, 27, 28, 29, 30. Including M. BRACTEATA Rehd. and M. GLAUCESCENS Rehd. of similar habit and range.

Gymnosporangium globosum Farl., leaf rust (O, I). Ala., Ind., S. C., Va.
G. juniperi-virginianae Schw., rust (O, I) on leaves & fruit. Pa. to Fla. and Ala., Nebr.
Phyllosticta solitaria Ell. & Ev., leaf spot. Kans.
Venturia inaequalis (Cke.) Aderh., scab. Va. (Sometimes resistant.)

MALUS BACCATA (L.) Borkh., SIBERIAN CRAB; = M. baccata x M. prunifolia, and M. ADSTRINGENS Zab. = M. baccata x M. pumila. Tree of China and N. E. Asia, parent of many edible crabapples.

Fabraea maculata Atk., leaf spot. Md.
Erwinia amylovora (Burr.) Winslow et al., fire blight. Widespread.
Gymnosporangium sp., rust (O, I). Fla.
G. globosum Farl., rust (O, I) on leaves. Kans.
G. juniperi virginianae Schw., rust (O, I) on leaves and sometimes fruit. Conn. to Va., Mo. and Nebr.
G. libocedri (P. Henn.) Kern, rust (O,I) on leaves & fruit. Oreg. III on Libocedrus decurrens.
Nectria cinnabarina Tode ex Fr., coral spot, twig blight. Alaska.
Phomopsis sp., on twigs. Alaska.
Phyllactinia corylea Pers. ex Karst., powdery mildew. Wash.
Phyllosticta solitaria Ell. & Ev., leaf spot. Ohio.
Physalospora obtusa (Schw.) Cke., black rot of fruit, frog-eye leaf spot. Eastern & Central States.
Podosphaera oxyacanthae (DC.) DBy., powdery mildew. Wash.

MALUS--Continued

Valsa ambiens Pers. ex Fr., and V. leucostoma Pers. ex Fr. on twigs, dieback.
Venturia inaequalis (Cke.) Aderh., scab. General.

MALUS CORONARIA (L.) Mill., WILD SWEET CRAB. Shrub or small tree of Growth Regions 16, 19, 22, 24, 25, 27, 28, 29, 30; also cult. for ornament, Zone IV.

(Ascochyta coronaria Ell. & Davis): Marssonina coronaria
Cercosporella pyrina Ell. & Ev., Ill., Wis.
Erwinia amylovora (Burr.) Winslow et al., fire blight. Pa., W. Va.
Gloeodes pomigena (Schw.) Colby, sooty blotch (fruit). Ind.
Gymnosporangium juniperi-virginianae Schw., rust (O, I) on leaves & fruit. General.
Illosporium malifoliorum Sheldon, leaf spot. W. Va.
Marssonina coronaria (Ell. & Davis) Davis, leaf spot. Ind., Iowa, Wis.
Nummularia discreta (Schw.) Tul., blister canker. W. Va.
Oidium pyrinum Ell. & Ev., powdery mildew. Wis.
Phyllosticta pyrina Sacc., leaf spot. Wis.,
P. solitaria Ell. & Ev., leaf spot. Ind., Iowa, W. Va.
Physalospora obtusa (Schw.) Cke., black rot, leaf spot. Ill., N. Y.
Podosphaera oxyacanthae (DC.) DBy., powdery mildew. Wis.
Valsa leucostoma Pers. ex Fr., canker, dieback. W. Va.
Venturia inaequalis (Cke.) Aderh., scab. Widespread.

MALUS FLORIBUNDA Sieb., JAPANESE FLOWERING CRAB. Shrub or tree of Japan, cult. for ornament, Zone IV. Including hybrids, such as M. ARNOLDIANA (Rehd.) Sarg. = M. floribunda x baccata, and M. SCHEIDECKERI (Spaeth) Zab. = M. floribunda x prunifolia.

Erwinia amylovora (Burr.) Winslow et al., fire blight. Ind., N. J., Tenn.
Gymnosporangium clavipes Cke. & Pk., rust (O, I). N. J.
G. globosum Farl., rust (O, I). N. J.
G. juniperi-virginianae Schw., rust (O, I). Widespread.
G. libocedri (P. Henn.) Kern, rust (O, I). Oreg.
Phyllosticta sp., leaf spot. Iowa.
Physalospora obtusa (Schw.) Cke., leaf spot. Ala., N. J.
Podosphaera leucotricha (Ell. & Ev.) Salm. Ill.

MALUS FUSCA (Raf.) Schneid. (M. rivularis Roem.), OREGON CRAB. Small tree of Growth Regions 1, 2, 4.

Armillaria mellea Vahl ex Fr., root rot. Wash.
Erwinia amylovora (Burr.) Winslow et al., fire blight.
Fabraea maculata Atk. (Entomosporium maculatum Lev.), leaf spot. Alaska.

MALUS--Continued

Fomes applanatus (Pers. ex Fr.) Gill., heart rot.
Gymnosporangium juniperi-virginianae Schw., rust (O, I).
G. libocedri (P. Henn.) Kern, rust (O, I). Alaska, Oreg.
G. nelsoni Arth., rust (O, I) on leaves & fruit. Alaska, Wash. (II and III on Juniperus spp.)
G. nootkatense (Trel.) Arth., rust (O, I) on leaves. Alaska, Wash. (II and III on Chamaecyparis nootkatenis.)
Nectria cinnabarina Tode ex Fr., coral spot. Alaska.
Neofabraea malicorticis (Cordley) Jack., Northwestern anthracnose. Oreg.
Phyllactinea corylea Pers. ex Karst., powdery mildew. Wash.
Erineum,--epidermal eruptions caused by mites. Alaska.

MALUS IOENSIS (Wood) Britt., PRAIRIE CRAB. Small tree of Growth Regions 20, 21, 22, 23, 25, 29; ornamental forms as M. I. var. PLENA (Schneid.) Rehd., BECHTEL'S CRAB, and forms bearing edible fruit as M. SOULARDII (Bailey) Britt. = M. ioensis x pumila, and others, are in cult.

Cercosporella pyrina Ell. & Ev., leaf spot. Wis.
Erwinia amylovora (Burr.) Winslow et al., fire blight. Ind.
Gymnosporangium juniperi-virginianae Schw., rust (O, I) on leaves, twigs & fruit. General.
Marssonina coronaria (Ell. & Davis) Davis, leaf spot. Mo.
Phyllosticta zonata Ell. & Ev., leaf spot. Iowa.
Physalospora obtusa (Schw.) Cke., black rot, leaf spot. Ill.
Venturia inaequalis (Cke.) Aderh., scab. Widespread.

MALUS SIEBOLDII (Reg.) Rehd., TORINGO CRAB. Shrub or small tree of Japan, cult. for ornament, Zone V.

Gymnosporangium juniperi-virginianae Schw., rust (O, I). Tenn.
Venturia inaequalis (Cke.) Aderh., scab. Widespread.

MALUS SPECTABILIS (Ait.) Borkh., CHINESE FLOWERING CRAB. Small tree of China, cult. for ornament, Zone IV.

Gymnosporangium clavipes Cke. & Pk., rust (O, I). Conn.
G. juniperi-virginianae Schw., rust (O, I). Conn.
Leptothyrium pomi (Mont. & Fr.) Sacc., fly speck (fruit). Fla.

MALUS SYLVESTRIS Mill., APPLE. Small to large tree of Europe and W. Asia, progenitor of most cult. apples, also of crabapples through hybridization with M. baccata. (Rehder assigns this role to M. pumila Mill.) Zone III.

Alternaria spp., black rot of fruit usually following scald or spray injury, also moldy core. Cosmopolitan. Several unidentified spp. are reported as causing rot of fruit in cold storage in Wash.

MALUS--Continued

A. mali Roberts, leaf spot, storage rot. Widespread.
Aphelenchus avenae Bastian, in roots. Me.
Armillaria mellea Vahl ex Fr., mushroom root rot. General except New England; especially in Pacific Coast States.
Aspergillus spp., especially A. niger Van Tiegh., fruit rot. Cosmopolitan but infrequent except in warm storage conditions, typically causing a dry rot except A. niger which causes a soft rot. A. sclerotiorum Huber also causes rot in cold storage.
Ascochyta mali Ell. & Ev., on branches. Ind., Mich.
Botryosphaeria ribis (Tode ex Fr.) Gross. & Dug., and var. chromogena Shear et al., on branches causing dieback & canker, also black rot of fruit. Eastern and Southern States.

Botrytis spp., (usually designated as B. cinerea Pers.), gray-mold rot, spot rot. Cosmopolitan but noted principally in the Pacific Northwest.
B. mali Ruehle, fruit rot. Wash.
Cephalosporium carpogenum Ruehle, fruit rot. Wash.
Cephalothecium roseum (Fr.) Cda., pink-mold rot (Often following scab). Eastern and Central States.
Cercospora mali Ell. & Ev., leaf spot. Gulf States, Vt.
Chaetomella sp., fruit rot. Wash.
Cladosporium spp., fruit rot. Occasional. The following are specifically mentioned: C. herbarum Pers. ex Link (conidial stage of Mycosphaerella tulasnei Jancz.) and C. malorum Ruehle.
Clasterosporium sp., papular scurf of twigs & bark. W. Va.
Clitocybe monadelpha Morgan, root rot. Ark., Va.
C. tabescens (Scop. ex Fr.) Bres., Fla.
Colletotrichum fructus (Stevens & Hall) Sacc., spongy dry rot of fruit, also on twigs & leaves. Mass. to N. C. and Ill.
Comandra pallida A. DC., on roots. Wash.
Coniocybe nivea (Hoffman) Rehm, on roots, possibly causing rot. Mo., N. Y., Pa.
Coniophora cerebella Pers., wood rot. Cosmopolitan.
Coniothecium sp. (?chomatosporum Cda.), blister or cracking of fruit (secondary). N. Mex., Wash.
Coniothyrium spp., fruit rot. Wash.

(C. fuckelii Sacc.): Leptosphaeria coniothyrium
C. pyrinum (Sacc.) Sheldon, leaf & fruit spot, also on twigs. Eastern & Central to Gulf States.
Corticium centrifugum (Lév.) Brés., fisheye rot (fruit). Pacific Northwest, also occasional in E. U. S.
C. galactinum (Fr.) Burt, white root rot. Del. to Va., Ark. and Ill.
C. koleroga (Cke.) Höhn. (C. stevensii Burt), thread blight. W. Va. and Ind. to Gulf States.
C. laetum (Karst.) Bres., limb blight. La., N. C.

MALUS--Continued

C. litschaueri Burt, on bark. N. Dak., Oreg.
C. salmonicolor Berk. & Br., limb blight. La., Fla.
Coryneum foliicolum Fckl., twig canker & fruit rot, also on leaves. Widespread.
C. longistipitatum Berl. & Bres., on branches. Alaska.
Cylindrocarpon angustum Wr., on bark. Oreg.
(C. mali (Allesch.) Wr.): Nectria galligena Bres.
Cylindrocladium scoparium Morgan, on roots.
Cyphella marginata McAlp., on twigs. Oreg.
Cytospora spp., canker & dieback following environmental injuries. Widespread. (Among the spp. reported are C. ambiens Sacc., C. chrysosperma Pers. ex Fr., C. leucosticta Ell. & Barth., C. leucostoma Sacc., C. microspora (Cda.) Rabh., C. personata Fr. C. rubescens Fr. Conidial stage of Valsa spp.)
Daedalea confragosa Bolt. ex Fr. and D. unicolor Fr., wood rot, often on living trees. Widespread.
Daldinia concentrica (Bolt. ex Fr.) Ces. & DeNot., wood rot. Cosmopolitan.
Diaporthe perniciosa El. & Em. Marchal (Phomopsis mali Roberts), leaf spot. Ark. (A synonym of D. eres Nit. according to Wehmeyer; also reported to cause fruit rot and twig canker.)
Diplodia spp., on branches. Occasional. (In general, conidial stages of Physalospora spp.; D. maura Cke. & Ell., N. & S. C.; D. mutila (Fr.) Mont. = P. mutila (Fr.) N. E. Stevens, Oreg.; D. pseudodiplodia Fckl. = P. obtusa (Schw.) Cke., N. Y.; D. sarmentorum Fr., Oreg.)
(Dothiorella sp. and D. mali Ell. & Ev.): ?Botryosphaeria ribis.
Endomyces mali Lewis, fruit rot. Me.
Epicoccum granulatum Penz., fruit rot. Wash.
Erwinia amylovora (Burr.) Winslow, fire blight. General.
Fomes applanatus (Pers. ex Fr.) Gill., butt rot, white mottled heart rot. Eastern and Central States.
F. fomentarius (L. ex Fr.) Kickx., white mottled heart rot. Idaho, Mont.
F. igniarius (L. ex Fr.) Kickx., white spongy heart rot. New England, N. Y., Oreg.
F. pinicola (Sw.) Cke., brown crumbly heart rot. Idaho.
Fumago vagans Pers. sooty mold. Occasional.
Fusarium spp., bullseye rot of stored fruit in Pacific Northwest; moldy core and rot of dropped fruit in Eastern U. S. (Spp. reported include F. avenaceum (Fr.) Sacc. and F. lateritium Nees var. fructigenum (Fr.) Wr.)
Fusarium spp., canker & dieback. Pacific Northwest. (Spp. reported include F. acuminatum Ell. & Ev., F. lateritium Nees, F. oxysporum Schlecht.; secondary to drought, winter, or insect injury.)
(Fusicoccum pyrorum Chupp & Clapp): Phomopsis mali.
Gibberella baccata (Wallr.) Sacc., twig canker. Oreg.
Gliocladium viride Matr., fruit rot. Ill.
Gloeodes pomigena (Schw.) Colby, sooty blotch. Eastern and Central to Gulf States, rare westward.

MALUS--Continued

Gloeosporium spp., fruit rot. Cosmopolitan. Most of the spp. reported, as G. cingulatum Atk., G. fructigenum Berk., G. rufomaculans (Berk.) Thuem. belong, as conidial stages to Glomerella cingulata, though forms differing in pathogenicity, environmental relations and ability to form asci (e. g. G. fructigenum Berk.) are sometimes distinguished.

(G. malicorticis Cordley): Neofabraea malicorticis

(G. perennans Zeller & Childs): Neofabraea perennans

Glomerella cingulata (Ston.) Spauld. & Schrenk, bitter rot (fruit), also twig, branch & trunk cankers. General, especially in S. E. States and rare in West.

G. rubicola (Ston.) Spauld. & Schrenk, bitter rot. Ill. (Possibly a var. of the preceding.)

Glutinium macrosporum Zeller, canker, fruit rot. Oreg.

Gymnosporangium clavipes Cke. & Pk., rust ("quince rust") O and I, on fruit. Me. to N. C., Ark. and Mich. III on Juniperus communis and J. virginiana.

G. globosum Farl., rust ("hawthorn rust"). O and I, on leaves. Me. to Ala., Kans. and Nebr. III on J. virginiana.

G. juniperi-virginianae Schw., rust (cedar rust,"cedar apple") O and I, on leaves & fruit. General east of Great Plains. III on J. scopulorum and J. virginiana.

G. libocedri (P. Henn.) Kern, rust (O, I) on leaves & fruit. Calif. Oreg. III on Libocedrus decurrens.

G. nidus-avis Thaxt., rust (O, I) on leaves, fruit & stems. Ind., Md., Miss., N. J. (Not recorded on apple in Arthur's Rust Manual.)

Helminthosporium papulosum Berg, black pox (excrescences on bark of branches & twigs), also fruit spot. Ind., Miss., N. J., Ohio, Pa., W. Va.

Hendersonia cydoniae Cke. & Ell., on leaves. Ill., N. Y.

(H. mali Thüm): Pleospora mali.

Heterodera marioni (Cornu) Goodey, root knot. Miss., Texas, Utah.

Hormodendron cladosporioides (Fr.) Sacc., fruit rot. Wash.

Hydnum spp., sapwood rot, wound rot. (Spp. reported include H. mucidum Pers., H. ochraceum Pers. ex Fr., H. septentrionale Fr.; reports all from New England, doubtless widespread.)

Hymenochaete agglutinans Ell., sapwood rot, canker. Conn.

Hypholoma sublateritium Fr., root & collar rot following freezing. N. Y.

Hypoxylon spp., sapwood rot, wound rot, canker. Occasional. (Spp. reported include H. atromentosum Fr., H. howeianum Pk., H. perforatum (Schw.) Curt., H. rubiginosum Pers. ex Fr., H. serpens Pers. ex Fr.)

Illosporium malifoliorum Sheldon, leaf spot. Pa. to N. C. and Ind.

Lenzites spp., sapwood rot, wound rot. Cosmopolitan. (L. betulina L. ex Fr., L. saepiaria Wulf. ex Fr., L. trabea Pers. ex Fr., L. vialis Pk. reported.)

Leptosphaeria coniothyrium (Fckl.) Sacc., canker, fruit rot. Eastern & Central States, Wash.

MALUS--Continued

Leptothyrium pomi (Mont. & Fr.) Sacc., fly speck (on fruit). General. (Ascogenus stage reported to be Microthyriella rubi Petr.)
Marasmius pyrinus Ell., on twigs. Ill.
Microdiplodia sp., wound rot of fruit. Wash.
Monilia spp. See Sclerotinia.
Monochaetia mali (Ell. & Ev.) Sacc. & D. Sacc., canker, leaf spot. N. J. to S. C., Mo. and W. Va.
Mucor piriformis Fischer, fruit rot. Wash.
Mycosphaerella pomi (Pass.) Lindau (Phoma pomi Pass.), on leaves, fruit spot. New England to N. C., Ark., and Mo.
M. sentina (Fr.) Schroet., leaf spot. Ill., N. J., Pa.
M. tulasnei Jancz., fruit rot. Wash. (Reported as the ascogenous stage of Cladosporium herbarum.)
Myriangium asterinosporum (Ell. & Ev.) Miller, on scale insects infesting bark. Ga.
Myxosporium corticolum Edg., bark canker, surface canker, fruit rot. New England to Md., Ill. and Mich; Okla., Oreg., S. Dak. (Has been related to various ascus stages in Europe, e. g. Dermatea corticola Arn., Neofabraea corticola Jörg. and Pezicula corticola Nannf.)
Nectria cinnabarina Tode ex Fr., twig canker, coral spot. Alaska and northern U. S.
N. coccinea Pers. ex Fr. (Cylindrocarpon candidum (Lk.) Wr.), branch & trunk canker. (Reported from northern U. S., New England to Wash., but possibly mistaken for the following sp.)
N. galligena Bres. (Cylindrocarpon mali (Allesch.) Wr. European canker. Eastern & Central States to N. C. and Miss., Pacific Coast.
Neofabraea malicorticis Jack. (Pezicula malicorticis (Jack.) Nannf.), Northwestern anthracnose, black spot canker, also fruit rot. Calif., Ill., Mass., Me., ?Nebr., Okla., Oreg., Wash.
N. perennans Kienholz (Gloeosporium perennans Zeller & Childs), perennial canker, bullseye rot of fruit. Idaho, Me., Mont., Oreg., Wash.
Nummularia discreta (Schw.) Tul., blister canker. East of Rocky Mts., especially in Upper Mississippi and Lower Missouri River Valleys.
Oospora spp., fruit rot. Occasional.
Penicillium spp., blue-mold rot, soft rot, core rot. Cosmopolitan. (Specifically distinguished as P. expansum Lk. ex Thom, but various other names, in part synonymous, as P. glaucum Lk., P. leucopus Biourge; and also other spp. as P. martensii Biourge, P. olivino-viride Biourge, P. puberulum Bainier, P. verrucosum Dierckx, and P. viridicatum Westling, are reported.)
Peniophora cinerea (Pers. ex Fr.) Cke., twig rot. Me., N. Y.
Pestalotia (Pestalozzia) spp., leaf spot. (P. concentrica Berk. & Br., reported from Md. to N. C. and Ind., also Idaho, is the name most frequently applied. P. hartigii Tub., is reported to cause rotting of stored fruit in Wash.

MALUS--Continued

Pezizella oenotherae (Cke. & Ell.) Sacc., on leaves & twigs. Md.
Pholiota adiposa Fr., brown cubical heart rot. Minn.
Phoma spp., twig blight, fruit rot. Widespread. (P. ambigua Sacc. = Phomopsis a. (Sacc.) Trav., is the conidial stage of Diaporthe ambigua Nit. Phoma mali Schulz. & Sacc. is probably a synonym. P. pomorum Thüm. is reported to cause a fruit spot in the Southeastern States) (P. pomi Pass.): Mycosphaerella pomi.
Phomopsis mali Roberts, ?rough bark disease. Va., Ohio, Central States, Pacific Coast States. (Said to be the conidial stage of Diaporthe perniciosa Marchal. Wehmeyer regards this and also D. ambigua as synonyms of D. eres Nit. Cf. Phytomonas papulans.)
Phoradendron flavescens (Pursh) Nutt., mistletoe. N. C., Texas; var. macrophyllum Engelm., Ariz., N. Mex.
Phyllosticta spp., on leaves, petioles & twigs. Widespread. (Spp. reported include P. clypeata Ell. & Ev. in Oreg., ?Ill.; P. limitata Pk., Mass. to Va. Ark. and Ind., P. mali Prill. & Del., W. Va.; P. pirina Sacc., New England to Gulf and Central States.)
P. prunicola Sacc., scurfy bark. Md. to N. C. and Ohio, Kans., Cf. Phomopsis mali and Phytomonas papulans.
P. solitaria Ell. & Ev., blotch (fruit), also leaf spot and twig canker. General except New England and far South, only on nursery stock in Pacific Coast States.
Phymatotrichum omnivorum (Shear) Dug., root rot. Ariz., Ark., Nev., N. Mex., Texas.
Physalospora obtusa (Schw.) Cke. (Sphaeropsis malorum Pk.), black rot (fruit), frogeye leaf spot, twig & branch cankers. General from Atlantic Coast to Great Plains; also reported in California but the black-rot fungus in the Northwest is predominantly the following sp.
P. mutila (Fr.) N. E. Stevens (Diplodia mutila (Fr.) Mont.), black rot, canker. Calif., Mont., Oreg., Wash.
P. rhodina (Berk. & Curt.) Cke., on roots. Ky.
Phytomonas melophthora Allen & Riker, soft rot associated with maggot injury. Wis.
P. papulans (Rose) Bergey, blister spot (fruit), scurfy bark. Ark., Ind., Mo., Pa. (Etiological connection with "rough bark disease" and "measles" is in controversy.)
P. rhizogenes Riker et al., infectious hairy root. Central States, Idaho, N. Y.
P. syringae (Van Hall) Bergey, blast (of flowers and young shoots). Ark.
P. tumefaciens (EFS. & Town.) Bergey, crown gall. General.
Phytophthora cactorum (Leb. & Cohn) Schroet., collar rot, fruit rot (chiefly of fallen fruit). Widespread.
Plenodomus fuscomaculans Coons, canker. Calif., Mich.
Pleospora fructicola (Newton) Ruehle, fruit rot. Wash.
P. herbarum (Pers. ex Fr.) Rabenh. var. citrorum Sacc., fruit rot. Pacific Coast States.
P. mali Hesler (Hendersonia mali Thüm.), on twigs. N. Y.

MALUS--Continued

Pleurotus ulmarius Fr.; wound rot. Occasional.
Podosphaera leucotricha (Ell. & Ev.) Salm. and P. oxyacanthae (DC.) DBy., powdery mildew. General. (The 2 spp. differ in technical details but are similar pathologically; both occur in all apple sections of the U. S., the former is reported most commonly in the Western States.)
Polyporus spp., sapwood or heart rot, sometimes on living trees. Occasional. (Spp. reported in this connection include P. admirabilis Pk., New England, N. Y.; P. adustus Willd. ex Fr., P. fissilis Berk. & Curt. and P. galactinus Berk., New England, N. Y.; P. gilvus (Schw.) Fr., Ind.; P. hirsutus Wulf. ex Fr., widespread; P. lacteus Fr., Ind., N. C., Va., Pacific Northwest; P. pubescens Schum., Minn.; P. resinosus Schrad. ex Fr., Minn.; P. spumeus Sow. ex Fr., Conn.; P. sulphureus Bull. ex Fr.; P. tulipiferus (Schw.) Overh., Md., Minn., N. Dak., Vt.).
P. versicolor L. ex Fr., collar rot, heart rot, wound rot, sappy bark. Widespread.
Poria spp., wood rot, root rot. (Reported spp. include P. ambigua Bres., Calif., Tenn.; P. pannocincta Romell, N. Y., P. spissa (Schw.) Cke., Mich.)
Pratylenchus pratensis (DeMan) Filip., in roots, Calif.
Radulum aterrimum Fr., on bark, ?canker. Minn.
Ramularia spp., fruit rot. Occasional. (Spp. reported include R. macrospora Fr., Md., Mass.; R. magnusiana (Sacc.) Lindau, Pacific Northwest.)
Rhabdospora rhoina (Pk.) O. Kuntze, on bark, ?canker. Minn.
Rhizoctonia solani Kühn, seedling rot. Texas, Wash.
Rhizopus nigricans Ehr., rot of overripe or injured fruit. Cosmopolitan.
Roesleria hypogaea Thüm. & Pass., root rot (seedlings). N. Y.
Rosellinia necatrix (Hart.) Berl., white root rot. Calif.
Schizophyllum commune Fr., bark & sapwood rot (secondary), occasionally green fruit rot. General except in South.
Sclerotinia fructicola (Wint.) Rehm (Monilinia fructicola (Wint.) Honey), American brown rot. General except the far South.
S. laxa Aderh. & Ruhl. (Monilinia laxa (Aderh. & Ruhl.) Honey), blossom blight, European brown rot. Oreg., Wash.
Sclerotium rolfsii Sacc., seedling blight. Ky., Md., Va.
Scolecosporium pedicellatum Dearn. & Overh., on bark following insect injury. Pa.
Septobasidium spp., on scale insects infesting twigs (sometimes reported as canker or limb blight.) Chiefly in Southern States. (Spp. reported include S. curtisii (Berk. & Desm.) Boed. & Stein., S. filiforme Couch and S. mariani Bres. in N. C.; S. pseudopedicellatum Burt in New York to Miss., Texas, and W. Va.; S. retiforme in Gulf States.
Sphaeropsis malorum Pk. (Not S. malorum Berk.), black rot, canker, leaf spot. The conidial stage of Physalospora obtusa occuring commonly in the North Central and Northeastern States, the

MALUS--Continued

ascogenous stage chiefly in the South.
Sporotrichum carpogenum Ruehle, fruit rot. Wash.
S. malorum Kidd & Beaumont, fruit spot & rot. Ind., ?Va., Wash.
Stemphylium congestum Newton and var. minor Ruehle, fruit spot & rot. Wash. (Other Stemphylium spp. on apple have an ascogenous stage in Pleospora.)
Stereum spp., wood rot. Occasional. (Spp. reported include S. albobadium (Schw.) Fr., Tenn.; S. gausapatum Fr., Ohio; S. hirsutum Willd. ex Fr., Mont.)
S. purpureum Pers., heart rot, root rot, silver leaf. Kans., Me., Minn., N. Y., Pacific Northwest.
Trametes spp., wood rot. (T. hispida Bagl. = T. peckii Kalchb. in Colo., Mont., Wash., Wis.; T. malicola Berk. & Curt., widespread.)
Trichoseptoria fructigena Maubl., fruit rot. N. Y.
Tympanis conspersa (Fr.) Rehm, on twigs. N. H., N. Y., Va.
Valsa spp. (V. ambiens Pers. ex Fr. and V. leucostoma Pers. ex Fr.), on twigs, ?canker & dieback. New England and North Central States, occasionally in West. (Associated with conidial stages in Cytospora; secondary, following environmental or other injuries, or saprophytic.)
Valsella melastoma (Fr.) Sacc., on branches. Wash.
V. papyriferae (Schw.) Berl. & Vogl., on winter-injured bark. Oreg.
Venturia inaequalis (Cke.) Wint. (Fusicladium dendriticum (Wallr.) Fckl.), scab. General, except far South.
Xylaria spp., black root rot. Chiefly in Eastern and Central States. X. mali Fromme Md. to Ala., Ark., and Ill.; X. polymorpha Pers. ex Grev. N. Y. to Va. and Ind., Oreg.
Bitter pit (Baldwin spot, stippen, storage pit)--physiological; occurs chiefly in common, or after removal from cold, storage, and is associated with irregularity of moisture supply, overstimulation by fertilizer or by pruning, and picking before maturity. General.
Black-end--physiological, probably drought injury, Ala., Oreg., Wash.
Black-heart (of wood)--freezing injury? Widespread.
Box scald--superficial injury to skin of fruit packed in boxes of certain kinds of wood, especially Douglas fir. Pacific Northwest.
Brown bark spot--undet. Ind., Ky., Mont., Wash.
Burr-knot (noninfectious hairy root)--hereditary form of adventitious root growth in certain vars.
Callus-knot, graft-knot--wound overgrowth due to defective union of scion & stock. (Often mistaken for crown gall.)
Chlorosis--mineral deficiency, usually of iron, on alkaline soils. Chiefly in Western States.
Collar rot (nonparasitic forms)--environmental, chiefly winter, injury.

MALUS--Continued

Cork ("drought spot" or external cork, internal cork, "drought" die-back, and rosette in part)--boron deficiency. Northeastern States to Ind., Ky., Pacific Coast States and probably elsewhere.

Internal bark necrosis of Delicious var.--cause unknown. General.

Internal breakdown--physiological, asscciated with overmaturity, delayed cool storage, high temperature. General on certain vars.

Internal browning--physiological, characteristic of certain vars. (e. g. Yellow Newtown) grown in cool cloudy weather; accentuated by low storage temperature.

Jonathan spot--physiological, asscciated with dry weather and delayed cool storage; occurs on Jonathan and certain other vars. throughout the U. S.

Measles (reddish, arcolate pimples on bark)--cause unknown but associated with unthrifty general growth; boron deficiency suspected in some cases. Reported throughout the U. S., but often confused with rough bark disease, black pox, and internal bark necrosis; typical form occurs in Ozark Region, Ind., N. Mex., Ohio, Pa., W. Va.

Mosaic (infectious variegation)--Pyrus virus 2 (Bradford & Joley) Smith (Marmor mali Holmes). Eastern States, (Conn., Me., Mich., N. Y.), Mo., Calif., Wash.

Rosette--mineral deficiency, in part boron, in other cases zinc. Occasional in Eastern & Central States, also Pacific Northwest and Calif.

Scald (discoloration & necrosis of fruit skin)--physiological, caused by accumulation of volatile respiratory products in storage; controlled by oiled paper wraps and packing material. General.

Soft scald (deepscald)--physiological, associated with delayed storage and low temperature; not controlled by oiled wraps. Reported chiefly on Jonathan, Rome Beauty and Stayman Winesap vars.

Soggy breakdown--physiological, associated with delayed storage and low temperature. Reported chiefly on Grimes Golden and Wealthy vars.

Stigmonose (dimpling and distortion of fruit, sometimes with internal corky masses), caused by feeding punctures of insects. Widespread.

Sunburn (of fruit)--injury to skin by light or heat, superficially resembling storage scald.

Sun scald (of bark)--freezing injury to cambium of trunk and larger branches on side exposed to sun. Chiefly in North Central States.

Water-core--physiological, caused by deficiency or irregularity of moisture supply, occurring generally in arid regions and especially on Winesap var.

(Division of Mycology and Disease Survey.)

A SURVEY OF COTTON SEEDLING DISEASES IN 1941 AND THE FUNGI ASSOCIATED WITH THEM

Paul R. Miller and Richard Weindling

Introduction

Special emphasis was placed this year, during the fourth consecutive cotton seedling disease survey, on securing a representative number of samples from Alabama, Louisiana, and Arkansas, which heretofore had not been sampled as adequately as some of the other cotton growing regions. Attempts were made, however, to obtain enough samples from the other areas, previously surveyed more intensively, to determine any unusual seasonal effect on the distribution of fungi.

Adverse weather conditions prevented the collection of specimens at the right stage of development in certain locations. Drouth conditions prevailed generally in the Coastal Plain sections of Georgia and South Carolina, and floods occurred in parts of Texas and Oklahoma.

Methods of collection, treatment and culturing seedlings were practically the same as described in a previous report.[1] All samples collected west of the Mississippi River were sent by air mail and arrived at Clemson, South Carolina within 2 days at the most.

Results and Discussion

The results of this survey are presented in Tables 1, 2, and 3, and in Figure 1. Generally, these results are very similar to those obtained during the 3 preceding seedling surveys in that Glomerella gossypii was the predominant pathogenic organism found on diseased seedlings east of Texas and Oklahoma. From the limited number of samples obtained in Texas and Oklahoma it appears that this organism extended its range slightly westward beyond where it has previously been secured. In view of the results of our previous surveys, it will be interesting to see whether the fungus survives the summer in these areas and appears later in boll-rot lesions. Rhizoctonia solani seemed to be more generally prevalent this year than during the past 3 seasons. The other organisms isolated, whose pathogenic effects are not so well known, appeared in about the usual frequency.

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[1] Weindling, R., P. R. Miller, and A. J. Ullstrup. Fungi associated with diseases of cotton seedlings and bolls with special consideration of Glomerella gossypii. Phytopathology 31: 158-167. 1941

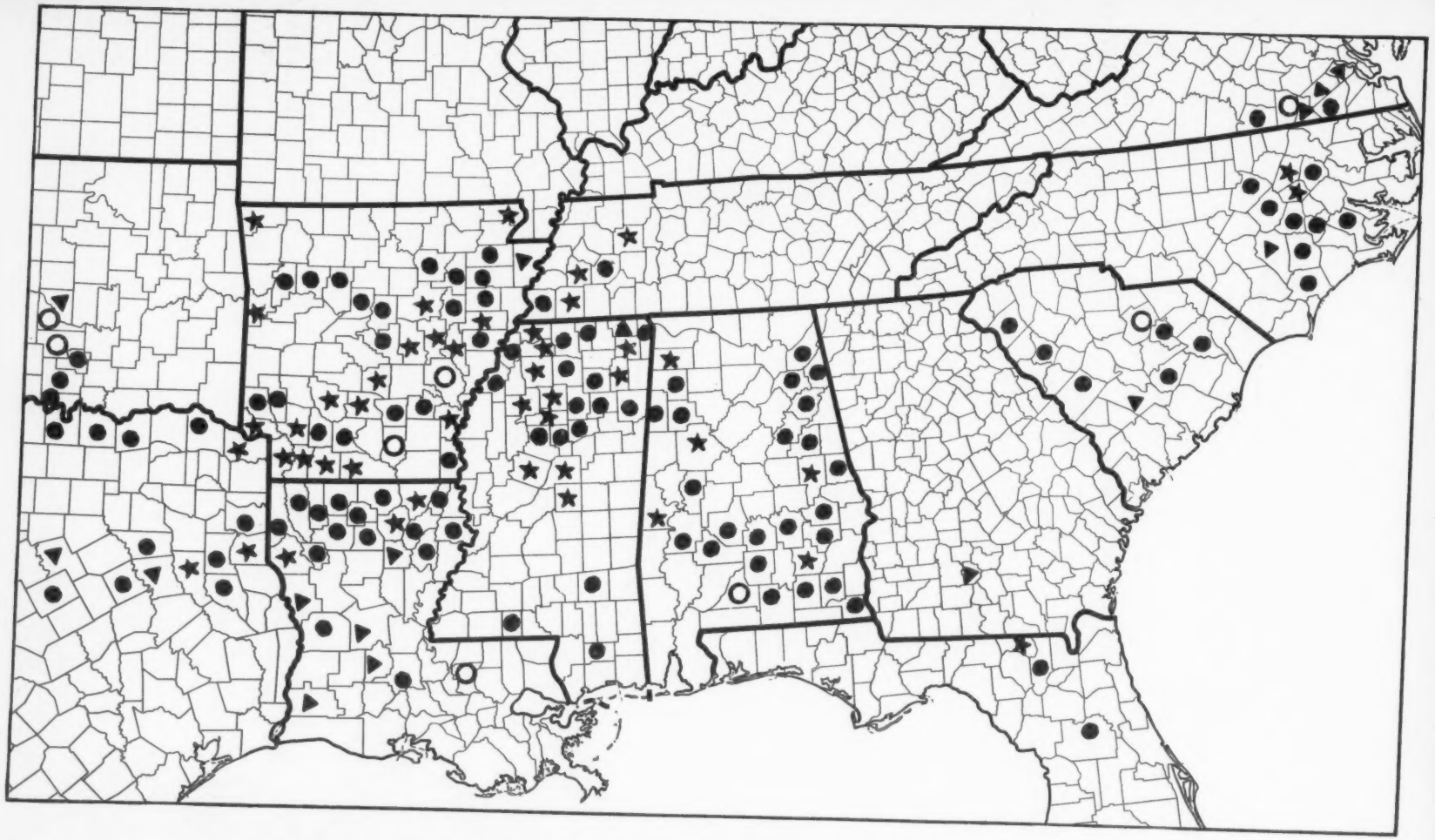

Figure 1. Counties included in the 1941 cotton seedling disease survey. Occurrence of *Glomerella gossypii* and *Rhizoctonia solani* in cultures made from seedling samples is indicated by: Dot — *Glomerella* isolated. Circle — *Rhizoctonia* isolated. Star — Both *Glomerella* and *Rhizoctonia* isolated. Triangle — Neither fungus obtained.

SEEDLING DISEASE SURVEY--1941

Table 1. Number of Samples from Each State Found with the Various Fungi

State	Number of Samples	Number of Samples Found With: G.g	F.m	Rh.s	F. sp	Alt.	D.g.	Other Fungi
Alabama	57	43	50	5	30	2	-	29
Arkansas	79	70	74	26	16	2	1	29
Florida	5	5	5	1	5	1	-	-
Georgia	2	-	2	-	2	2	1	2
Louisiana	45	32	36	4	12	3	-	27
Mississippi	47	40	41	17	25	9	-	26
North Carolina	33	20	17	2	17	6	-	26
Oklahoma	12	4	9	2	2	1	-	4
South Carolina	9	6	8	1	8	-	-	7
Tennessee	10	9	10	3	6	3	1	6
Texas	29	22	25	3	4	3	-	14
Virginia	9	3	4	1	7	-	1	9
Total	337	254	281	65	134	32	4	179
Percentage of samples found with the fungi		75.3	83.3	19.3	39.8	9.5	1.2	53.1

Table 2. Number of Seedlings from Each State Found with the Various Fungi

State	Number of Seedlings Cultured	Number of Seedlings Found with: G.g.	F.m.	Rh.s.	F.sp	Alt.	D.g.	Other Fungi	No Fungi
Alabama	1139	246	320	7	86	2	-	61	528
Arkansas	1420	812	934	85	28	6	1	74	138
Florida	100	79	39	1	6	1	-	-	2
Georgia	40	-	3	-	24	3	1	9	7
Louisiana	894	348	278	20	29	3	-	52	350
Mississippi	884	444	428	42	78	14	-	77	159
North Carolina	660	112	76	2	60	12	-	86	364
Oklahoma	175	9	54	2	3	1	-	8	105
South Carolina	180	60	54	1	30	-	-	20	44
Tennessee	200	46	80	5	31	3	1	18	51
Texas	515	123	217	11	5	4	-	38	206
Virginia	130	25	22	1	22	4	1	23	58
Total	6337	2304	2505	177	402	49	4	466	2012

Abbreviations used:

G.g. = *Glomerella gossypii*
F.m. = *Fusarium moniliforme*
Rh.s. = *Rhizoctania solani*
Alt. = *Alternaria* species
F.spp. = *Fusarium* species other than *F. moniliforme*
D.g. = *Diplodia gossypina*
Others = Fungi found rarely

SEEDLING DISEASE SURVEY--1941(Continued)

Table 3. Percentage of Seedlings from Each State Found With the Various Fungi.

State	Number of Seedlings Cultured	Percentage of Seedlings Found With							
		G.g.	F.m.	Rh.s	F.sp	Alt.	D.g.	Other Fungi	No Fungi
Alabama	1139	21.6	28.1	.6	7.5	.2	-	5.4	46.4
Arkansas	1420	57.2	65.8	6.0	2.0	.4	.1	5.2	9.7
Florida	100	79.0	39.0	1.0	6.0	1.0	-	-	2.0
Georgia	40	-	7.5	-	60.0	7.5	-	22.5	17.5
Louisiana	894	38.9	31.1	2.2	3.2	.3	-	5.8	39.2
Mississippi	884	50.2	48.4	4.8	8.8	1.6	-	8.7	18.0
North Carolina	660	17.0	11.5	.3	9.1	1.8	-	13.0	55.2
Oklahoma	175	5.1	30.9	1.2	1.7	.6	-	4.6	60.0
South Carolina	180	33.3	30.0	.6	16.7	-	-	11.1	24.4
Tennessee	200	23.0	40.0	2.5	15.5	1.5	.5	9.0	25.5
Texas	515	23.9	42.1	2.1	1.0	.8	-	7.4	40.0
Virginia	130	19.2	16.9	.8	16.9	-	.8	17.7	44.6
Total	6337	36.4	39.4	2.8	6.3	.8	.1	7.4	31.7

Abbreviations used: (See bottom of page 379).

(Division of Mycology and Disease Survey and Division of Cotton and other Fiber Crops and Diseases.)

WEATHER AND WINTER DRYING

E. P. Felt

(Quoted from Scientific Tree Topics 1:50-54. 1941, No. 7. Published by the Bartlett Tree Research Laboratories, Stamford, Conn.)

The past winter was not exceptionally cold and yet a great amount of winter injury, really winter drying, developed, most of it probably in late winter and early spring.

Weather Features in March and April

The month of March had an unusually long series of bright days, the sun being warm enough to dry out the tops of plants while the roots were mostly in frozen soil and relatively inactive. In addition, there were four cold days that month with winds of gale or near gale force and late in March one extremely mild day in New York and Washington which greatly increased evaporation from above ground parts of trees and shrubs. The rainfall for the month was markedly below the normal amount. The

U. S. Geological Survey reported in mid-May that streams in New England were considerably below normal and in parts of Connecticut a general recession of ground water levels had occurred. The weekly weather summary of the government, as reported in the New York Times of May 25, recorded high winds of gale force May 23 at several weather stations along the coast from New York City to northern Maine and stated that the severe drought conditions over New England had not been appreciably affected by light to locally moderate rains.

The following data from U. S. Weather Bureau reports give a concrete idea of the abnormal conditions prevailing in March, April, and May.

MAXIMUM WIND VELOCITIES AND MAXIMUM TEMPERATURES

	Albany		Boston		New York		Philadelphia		Washington	
March	Wind	Temp.	Wind	Temp.	Wind	Temp.	Wind	Temp.	Wind	Temp.
17	34[M]	39°	31[M]	42°	43[M]	42°	28[M]	47°	27[M]	48°
18	34	16	32	16	61	28	33	29	27	30
19	47	24	33	30	60	35	32	38	25	44
20	32	30	25	31	39	44	21	51	9	58

PRECIPITATION, INCHES

	Total	Normal	Total	Normal	Total	Normal	Total	Normal	Total	Normal
March	1.85	2.62	3.40	3.57	2.52	3.64	2.80	3.39	2.57	3.75
April	.72	2.46	0.0	2.2	3.12	3.23	2.48	3.05	2.73	3.27
May	1.19	2.90	2.43	3.18	1.52	3.24	.87	3.26	1.58	3.70

ACCUMULATED DEFICIENCY SINCE JANUARY 1

--4.77	—3.63	--3.79	--4.93	--6.70

It will be noted that the precipitation for April recorded in New York City shows less variation from the normal than at the other stations. It appears to have been a local condition as indicated by the following tabulation.

PRECIPITATION, INCHES

	Stamford		Bridgeport		Hartford		Amherst	
	Total	Normal	Total	Normal	Total	Normal	Total	Normal
March	2.61	3.87	2.41	4.26	2.10	3.90	1.63	3.70
April	1.94	3.37	1.88	3.80	1.04	3.36	.55*	3.35

*least since 1836

The Stamford figures were supplied by Howes Private Weather Bureau. The Bridgeport figures were obtained through the courtesy of the Bridgeport Hydraulic Company with the additional information that the precipitation from January to May 21 was 11.54 inches, the normal being 18.33 inches. The data from Hartford and Amherst are from official weather stations. The latter in its monthly report for April records the mean

temperature at 65° which has not been equalled since 1889. The heating load in March was 1074 compared to a normal of 949 degree-days. At Amherst in March there were 256 hours of bright sunshine, the normal being 199 hours. There were 329 hours of bright sunshine in April the normal being 220 hours. Sunshine would normally decrease humidity, increase evaporation, and thus intensify winter drying. The abnormally high temperatures when the soil was mostly frozen also had an effect. Temperatures in April were above normal and on several days they were over eighty as shown in the following tabulation.

MAXIMUM TEMPERATURES

April	Albany	Boston	New York	Philadelphia	Washington
14	74°	77°	85°	90°	88°
15	85	78	83	86	89
16	70	73	79	80	83
17	80	65	77	83	85
18	76	74	78	82	80
19	86	74	72	87	90
20	93	89	78	90	94
28	76	78	76	78	77
29	79	71	67	79	82
30	80	82	83	85	85

Hybrid Rhododendrons Severely Injured

The first effects of these abnormal drying conditions were noted in mid-March on rhododendrons, especially hybrids, the leaves rolling tightly, drying out, and in more exposed places some three-fourths of good-sized or large individual plants were killed. Many thousands were affected. The amount of damage was closely related to the exposure of the affected parts, the lower branches suffering less and well protected plants escaping with little damage.

Observations May 22, 1941, at New City, Rockland County, N. Y., showed that some of the hybrid rhododendrons were killed practically to the ground and others had most of their tips killed or at least the terminal whorl of leaves. A large proportion of the hybrid rhododendrons were then developing adventitious buds. These started in some cases just below a dead terminal four to six inches long. In others new growth was starting eighteen to twenty-four inches below the tips of the twigs, while those more seriously affected were producing buds some twelve to six inches above the ground. A very few showed no new growth. It was stated that an earlier examination of some of these rhododendrons indicated no injury to the roots. Mountain laurel, especially that recently set on or in shallow soil underlaid by rock was badly injured. Some damage to Pachysandra was noted and also to boxwood.

Narrow-Leaved Evergreens

Early in April the narrow-leaved evergreens, hemlock, white pine, red pine, and Scotch pine and Norway spruce, in about the order named

showed drying and later brown needles which were especially marked in the white pine. Some of these trees in more exposed locations were killed, the damage being particularly marked on western Long Island. Arborvitae and red cedar also suffered greatly, those recently transplanted being more affected.

In addition to the above, Retinospora, a small incense cedar and two small Sequoias, the big tree of California, were severely damaged on the Laboratories' grounds.

Ice Injury

Some of the injury to white pine and arborvitae may have been caused by the severe ice storm of the past winter. Many of the brown twigs of white pine had a pronounced bend caused possibly by the weight of the ice and sufficiently abrupt to have interfered with sap circulation and resulted in the dying of the affected parts. This type of injury is quite different in its effects from the general dying of small branches or even parts of trees affected by winter drying.

Flowering Dogwoods Suffered Greatly

Severe injury to flowering dogwoods became apparant in early May, the greatest damage being to those in locations exposed to winds or in protected places where they would get the maximum drying effects of the hot sun in early spring. There was a gradual dying of the tips of the branches back almost to the base of the tree in some cases. In a number of instances there was a bleeding or flowing of sap from the branches just below the dried parts and in a few cases extensive bleeding occurred from cuts made in the winter at a time when ordinarily little bleeding would follow. Apparently the dogwood roots were not severely injured by the winter and with the coming of spring the great sap pressure incident to the large portion of the top killed found relief in unusually severe bleeding.

Maples and Other Deciduous Trees

Later, the second week in May, other deciduous trees, especially soft maples, showed dead branches in the top and occasionally the injury was such that new shoots wilted after they had attained a length of several inches. This occurred over most of the tops of some roadside trees with a trunk diameter of six inches. This is probably another phase of winter drying and is most likely to appear on trees growing in wet places or in poor soil.

Two small sugar maples presenting unusual conditions came under observation late in May. Most of the leaves on one tree were partly dried and shrivelled to a shape most suggestive of the claw-leaved maple, the tips of the lobes and the deformed bulges on either side of the midrib being dry and brown. The other tree showed this condition on only a few branches. The maples had a trunk diameter of about five inches and had

been set only a few years. Some ten others put out at the same time showed no injury. A number of other trees, notably ash, were affected. Winter drying was noted on the Laboratories grounds on Chinese redbud, hackberry, hoptree or hop hornbeam, magnolias (glauca and stellata), oaks, mossycup, water and willow, pawpaw, red locust, silver bell or Halesia, sweet and sour gums and weeping willow.

Shrubs Injured

There were many of these in addition to Rhododendrons. The following are some of the more common: daphne, deutzia, gordonia, smoke tree, spirea, Stephanandra and Stewartia.

Margin of Safety Narrow

It is evident that the margin of safety was quite narrow last spring. Neither insects nor plant diseases were involved in more than an incidental manner. It was winter drying.

Probable Developments

The exceptionally severe winter of 1933-34 caused extensive and varied winter, mostly frost, injury on a large number of different plants, some of this developing several years later. It is probable that something of the kind will follow the late winter drying of 1941 and correct diagnosis of troubles will be unusually difficult for some months and possibly years.

Treatment for Winter Drying

What can be done under the varied conditions following winter drying? Pruning should be delayed until new growth clearly indicates the limits of living wood. The dead and markedly weakened wood should be cut and burned.

Weak trees and shrubs should be watered if drought conditions have not been corrected by heavy rains. Keep in mind that soil moisture is abnormally low in many places and that further injury may become apparent.

The weaker trees should be fed liberally to stimulate the growth of new roots and the production of more adequate tops. This has special application to trees and shrubs where the new growth has wilted. There may be many cases where invigoration is advisable. Feeding is a valuable aid in preventing borer attack.

Many of the more severely injured trees will require expert pruning over a series of years in order to secure a satisfactory rehabilitation.

FREAK WEATHER INJURES RHODODENDRONS

P. P. Pirone

(Quoted from Nursery Disease Notes of the New Jersey Agricultural Experiment Station, Department of Plant Pathology, Vol. 13, No. 9, March, 1941.)

The sudden and rather complete wilting of thousands of rhododendrons during the last week in March and early part of April has aroused great concern among owners of such plants, commercial arborists, and nurserymen doing maintenance work. Requests for information on this trouble have been numerous and will doubtlessly continue to increase as the season advances.

One of the first reports was received from Mr. R. E. Harman, Essex County Agricultural Agent, who noted extensive damage in the large rhododendron plantings in Llewellyn Park, West Orange. A personal inspection by the author, of the rhododendrons in this area and in nearby cities and towns throughout northern New Jersey revealed that the condition was widespread and more serious than at first thought. Rhododendron plantings, as far south as Princeton, were also affected.

Symptoms

Both native and hybrid rhododendrons wilted suddenly during the week of the 24th of March. Previous to that time these plants appeared to have withstood the winter rather well. The leaves on affected plants wilted and clung to the stems in a dried condition. In most cases the browning along the leaf edges or along the midrib, which is typical of ordinary winter drying, was absent. The effect was similar to that resulting from root rot, complete girdling or severing of the stems.

In nearly all instances, the plants situated in exposed sites wilted most severely. Plants of the same age and under similar soil conditions but situated on a more sheltered side of the house, or adjacent to such wind breaks as narrow-leaved evergreens or clumps of shrubs and small trees, appeared to be unaffected or affected only to a slight extent. Occasionally the leaves on individual plants or on one side of a plant were still turgid whereas those on adjacent plants or on the remainder of the same plant, were completely wilted. The flower buds on badly wilted plants were drying up rapidly.

Although most of the damage in Llewellyn Park occurred principally on Rhododendron maximum, it appeared to be more severe on hybrid varieties in other areas. This was especially true at Princeton. Rhododendron carolinianum in many sections of the state appeared to be killed back completely. The amount of damage, however, did not appear to be

correlated with the species but was more closely associated with the wind and sun exposure, and to some extent, the soil conditions.

Oddly enough, laurel [Kalmia] and leucothoë growing near many of the wilted rhododendrons appeared to have suffered little or no damage at all.

Cause

Although the sudden appearance of wilt over such a wide area precluded the possibility of insect injury or disease, a number of wilted plants was examined carefully. No evidence of insect damage to the roots or stems was found, nor were there any symptoms typical of fungus-induced wilts. The only plausible conclusion that could be drawn was that the wilting was associated with weather conditions. The fact that the rhododendrons under observation had withstood all unfavorable climatic conditions for many years (some for a period of 30 years or more), and that they had appeared to be in good condition until mid-March of the present year, would lead one to believe that the problem could be attributed to some unusual climatic condition occurring after the 15th of March. A letter requesting information on the March weather was forwarded to the New York City Weather Bureau. Mr. Benjamin Parry, meteorologist, answered as follows:

> "..... The entire month of March was windier than normal, and during the period 17-23 the average wind velocity was considerably above 20 miles per hour with the 19th averaging 40 miles per hour. For 5-minute periods on the 18 and 19, velocities of 60 miles per hour were recorded."

Although these records were taken less than 15 air miles away from the area where most damage was observed, there is little doubt that similar conditions prevailed in northern New Jersey. In fact, the windy weather was general throughout the state of New Jersey and southeastern New York.

In addition to the extremely windy weather, which was cold and dry, another climatic factor served to further aggravate the trouble. On Sunday, the 23d of March, following the period of high winds, the weather was extremely mild. Some persons in North Jersey recalled that on this day, the weather was so mild that many were about without an overcoat. These relatively high temperatures doubtless increased the water loss from the leaves at a time when the soil was still frozen and when such a loss could not be replaced readily through the roots.

EARLY BLIGHT AND OTHER DISEASES OF TOMATOES IN EAST TEXAS IN 1941

G. E. Altstatt and P. A. Young

A very destructive epiphytotic of early blight (Alternaria solani) of tomatoes was found in a recent survey (June 26-28) of spring and summer tomatoes in Northeast Texas. This is the first season in the past 7 years that this disease has been serious, as it previously ruined only occasional fields of tomatoes. Every field visited this year showed severe damage, and in many fields tomato plants were practically defoliated. Fruit spots and stem cankers caused by early blight were common. It is estimated that early blight cut the green-wrap shipping season short by a full week, and greatly decreased the yield of canning tomatoes. A wet spring and intermittent showers during the last 2 weeks of June have facilitated the rapid spread of the disease.

Southern blight (Sclerotium rolfsii) was more abundant and destructive than it was in the past 5 years. The disease killed a large number of plants, and rotted many fruits touching the soil.

Fusarium wilt (Fusarium [bulbigenum] lycopersici) was destructive in fields planted with susceptible varieties, mainly Gulf States Market. Bacterial spot (Bacterium vesicatorium) [Phytomonas vesicatoria] damaged fields near Brownsboro, but was less common than usual elsewhere. Root knot (Heterodera marioni) was destructive in some fields. Blossom-end rot [non-parasitic] was severe in fields near Timpson, where an 8-inch rain in mid-June was followed by dry weather. The yield of Rutgers tomatoes was decreased by blossom-end rot in Cherokee County. Puff [undet.] was severe in one field near Edgewood. The owner believed that an excessive application of commercial fertilizer prior to planting was responsible for this condition, as an adjacent field of tomatoes with less fertilizer had very few puffed fruits.

Curly top, [virus], which was widespread during the 1940 season, was rare in 1941. Only one plant with symptoms of this disease was found near Jacksonville. In the latter part of April typical curly-top-infected plants were received from Grimes County, on the western limits of the East Texas tomato area but no further reports nor specimens have been received.

Fruit rots caused by Alternaria tenuis, Rhizopus nigricans, Rhizoctonia sp., and species of Fusarium were common.

An unidentified fruit spot was causing widespread damage to green-wrap tomatoes. The white spots, each about 1 mm. in diameter, had a central brown dot. The spots occurred only on the uppermost surfaces of the fruit. The cause of these spots remains to be determined.

(Texas Agricultural Experiment Station, College Station, Texas.)

REPORTS ON LATE BLIGHT AND OTHER POTATO DISEASES

POTATO LATE BLIGHT AND BACTERIAL RING ROT IN PENNSYLVANIA: Late blight [Phytophthora infestans] appeared in Pennsylvania and Somerset counties on June 19. This is a very early date for its occurence in this state. At present--July 29--it has been found in practically every county in the northern section of the state, i.e., in the mountains. Although the weather has not been optimum for late blight in some areas the disease is reaching epiphytotic proportions.

Bacterial ring rot [Phytomonas sepedonica] has been definitely identified only in one county so far, i. e., in Lehigh county on Katahdins that were one year removed from certification. This was probably the worst case of ring rot that I have seen since the disease made its appearance in Pennsylvania. At least two-thirds of the vines have wilted and most of the tubers under these vines show some evidence of ring rot. (O. D. Burke, Pennsylvania State College, July 30.)

LATE BLIGHT AND OTHER POTATO DISEASES IN NEW YORK (Reports from Weekly News Letter for dates indicated): Nassau County (Long Island)--The paramount type of injury on Green Mountains is tipburn [non-par]. Although late blight has been discovered in some fields, it has had little injurious effect on the potato crop throughout the county, when compared with tipburning. (Robert Staples, July 28).

Late blight is general in most fields on the North Shore but it is not exactly epidemic in proportions owing probably to hot weather. It was also observed on July 24 in the Hicksville area. (H. H. Campbell, July 28.)

Suffolk County (Long Island)--Potato late blight is quite general on the South Fork and has showed up in several fields in the western part of the County. To date none has been found from Calverton east. (W. G. Been, July 28.)

Genesee County--Several fields of early potatoes have been almost completely killed by early blight [Alternaria solani]. The growers said the potatoes were about an inch in diameter and expressed regret that they did not spray them better. (Dort A. Cameron, July 14.)

Orleans County--Early blight was observed in one field. (Arthur G. West, July 14.)

Oswego County--Black leg [Erwinia phytophthora] has been found in a field of Katahdins and a field of Houma. (L. E. Curtis, July 28.)

BRIEF NOTES ON PLANT DISEASES

SEPTORIA LEAF SPOT ON SAFFLOWER IN NORTH TEXAS: Specimens of safflower (Carthamus tinctorius) showing a blighting of the foliage have been received from Supt. J. R. Quinby of Substation No. 12, Chillicothe, Texas. Examination of the discolored foliage showed large numbers of pycnidia, apparently of Septoria carthami Muras, and an abundance of spores. The first infections seemed to occur as large irregular leaf spots or blotches and finally the entire leaf became browned. The fungus was found also on the stems and floral bracts. During the unusually wet weather of recent months the disease appears to have done considerable damage to the crop at Chillicothe. Since safflower is a prospective new crop for Texas, the diseases affecting the plant are of especial interest at this time. (A. A. Dunlap, Texas Agricultural Experiment Station, College Station.)

BARLEY CROP ONLY LIGHTLY DAMAGED BY SCAB AND RUST: A survey of the North Central barley region just completed by the U. S. Department of Agriculture indicates yields of plump grain relatively free from blight, in spite of some scab and leaf rust [Gibberella zeae, Puccinia sp.]

James G. Dickson, Bureau of Plant Industry agent in charge of the barley disease survey, reports a light scab infection of the crop in southern Wisconsin, northern Illinois, northern Iowa, southern and central Minnesota, and eastern South Dakota. Most of the kernels damaged are badly shriveled and probably will be cleaned out in threshing, he believes. Leaf rust is prevalent throughout the area. Showers have caused some weathering, but no serious damage is expected unless rains continue.

The good condition of the barley crop, Dickson says, is in striking and unusual contrast to that of wheat. He reports spring wheat badly infected by scab over most of the area and severe leaf rust [P. rubigo-vera tritici] on all susceptible varieties.

Crown rust [P. coronata] of oats has caused severe damage in the region, Dickson found. He expects average oat yields to be reduced by this disease, although crown rust resistant varieties show promise of excellent yields. Early oats have already been cut in most sections, partly because leaf rust hastened maturity of the crop. (From U. S. Dept. Agr. Press Release, July 26.)

DAMAGE CAUSED BY APPEARANCE OF FLAX ANTHRACNOSE IN CALIFORNIA: Anthracnose [Colletotrichum lini] is showing up on California flax for the first time, causing as much as 40 to 50 percent loss this year in some areas of the San Joaquin and Imperial Valleys, says Pacific Rural Press, July 12. Plant pathologists at the University of California state that prolonged damp weather undoubtedly encouraged growth of the fungus, and believe the disease has been present in other years to a minor degree but was not noticed. (From U. S. Dept. Agr. Daily Digest, July 17.)